


Notice of Allowability	Application No.	Applicant(s)	
	10/066,641	BOUADMA, NOUREDDINE	
	Examiner	Art Unit	
	Leith A Al-Nazer	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment received on 29 December 2003.
2. ☒ The allowed claim(s) is/are 1,2,4-8 and 10-13.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

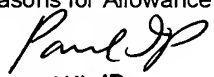
7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☒ including changes required by the proposed drawing correction filed 4/30/03 and 5/21/03, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other |


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EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Peter C. Su on January 20, 2004.

2. Claims 1, 6, and 8 have been amended as follows:

1. A method of fabricating a semiconductor laser structure, said method comprising:
 - (a) providing a group III-V material (3-1);
 - (b) forming a p-doped confinement layer (16) overlaying the group III-V material substrate;
 - (c) forming a thin n-doped layer (17) overlaying said p-doped confinement layer;
 - (d) growing ~~[[grown]]~~ an active layer (4) overlaying said p-doped confinement layer;
 - (e) forming a thin n-doped layer overlaying the active layer;
 - (f) locally etching said active layer, said thin n-doped layer and said p-doped confinement layer to form a rectangular-shaped mesa (11), the rectangular-shaped mesa having a ribbon, the ribbon referring to the active layer after etching; and

(g) burying said rectangular-shaped mesa in an n-doped burying layer (19), the rectangular-shaped mesa having a first lateral (top) surface, a second lateral (a first side) surface, a third lateral (a second side) surface, and a fourth lateral (bottom) surface;

wherein the first, second and third lateral surfaces (42, 43, 44) of the rectangular-shaped mesa are surrounded by the n-doped burying layer (19), and the fourth lateral surface (41) by the thin n-doped layer (17);

wherein the thin n-doped layer (17) separates [[separating]] the p-doped confinement layer (16) and the ribbon (4) so that there is no migration of p dopant toward the active layer.

6. The method of Claim 4, after the providing step (a), further comprising:

(a) epitaxially growing a p-doped contact layer on said group III-V material substrate, implanting protons in portions of the p-doped layers.

8. A semiconductor laser structure, comprising:

a group III-V substrate (3-1);

a non-doped buffer layer overlaying the group III-V substrate (3-2);

a p-doped contact layer (15) overlaying the non-doped buffer layer;

a p-doped confinement layer (16) overlaying the p-doped contact layer;

a thin n-doped layer (17) overlaying the p-doped confinement layer;

an active layer (4) overlaying the thin n-doped layer;

a thin layer of non-doped layer (18) overlaying the active layer; wherein a rectangular-shaped mesa is formed by etching the thin n-doped layer, the active layer, and the thin layer of non-doped layer, the rectangular-shaped mesa having a first lateral (top) surface, a second lateral (a first side) surface, a third lateral (a second side) surface, and a fourth lateral (bottom) surface, the thin n-doped layer separating the p-doped confinement layer and the active layer so that there is no migration of p dopant toward the active layer, the etched portion of the active layer being referred as a ribbon; and an n-doped burying layer surrounding the first, second and third lateral surfaces (42, 43, 44) and the fourth lateral surface (41) by the thin n-doped layer (17).

Allowable Subject Matter

3. Claims 1, 2, 4-8, and 10-13 are allowed.

4. The following is an examiner's statement of reasons for allowance:

The prior art does not teach or suggest some of the limitations found in independent claims 1 and 8. Mersali et al '768 teaches a similar invention to that of the present application. However, Mersali et al '768 does not teach an n-doped burying layer surrounding the first, second, and third lateral surfaces, and the fourth lateral surface bordering a thin n-doped layer. Therefore, independent claims 1 and 8, as well as all dependent claims, are allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Communication Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A Al-Nazer whose telephone number is 571-272-1938.

The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 571-272-1941. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

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